Claims

1. A tissue paper product, such as toilet paper or household towel,

wherein the tissue paper product comprises at least three plies including a top ply, a bottom ply, and an inner ply located between the top ply and the bottom ply, the top ply and the bottom ply being outermost plies of the tissue paper product, a basis weight of the tissue paper product being in a range of 30 to 150, optionally 30 to 100 g/m^2, or 35 to 80 g/m^2, or 40 to 65 g/m^2,

wherein the top ply has been embossed and comprises at least two types of embossments including first embossments with a first height and second embossments with a second height, the first height being larger than the second height,

wherein the inner ply has not been embossed,

wherein the bottom ply has been embossed,

the top ply, the inner ply, and the bottom ply are ply-bonded with an adhesive, such as a lamination glue, and/or water and/or mechanical bonding, such as edge embossing,

wherein at least one of the top ply and the bottom ply has been embossed by a heated embossing roll.

2. The tissue paper product of claim 1, wherein at least one of the plies of the tissue paper product, optionally all of the plies of the tissue paper product, are made of Conventional Wet Press (CWP) paper.

3. The tissue paper product of claim 1 or 2, wherein the tissue paper product comprises a number of plies between three and six.

4. The tissue paper product of any one of the preceding claims, wherein the tissue paper product comprises

exactly three plies.

5. The tissue paper product of any one of claims 1 to 3, wherein the tissue paper product comprises exactly four plies comprising the top ply, the bottom ply, the inner ply, and an another ply, wherein optionally the another ply and the top ply are embossed together or the another ply and the bottom ply are embossed together, or the another ply and the inner ply are combined with the top ply and ply-bonded with the bottom ply at tips of the first embossments with an adhesive, such as lamination glue.

6. The tissue paper product of any one of claims 1 to 3, wherein the tissue paper product comprises exactly five or six plies.

7. The tissue paper product of any one of the preceding claims, wherein the inner ply optionally, is only partially embossed at locations where it is ply-bonded with the top ply and the bottom ply.

8. The tissue paper product of any one of the preceding claims, wherein the top ply includes exactly two types of embossments, being decorative embossments with an embossing height in a range of 0.2 mm to 2.0 mm, optionally 0.8 mm to 1.4 mm, and micro-embossments with an embossing height in a range of 0.1 mm to 1.2 mm, wherein

wherein the decorative embossments cover between 1% and 20% of a total surface of the top ply, optionally between 2% and 10%, or between 3% and 6%,

wherein the tissue paper product comprises at least one region in which a density of the micro-embossments is, in the area of the top ply without the decorative embossments, in a range of 25 to 120 dots/cm^2, optionally 40 to 100 dots/cm^2, or 50 to 80 dots/cm^2, and

wherein, optionally, the bottom ply includes exactly one or two types of embossments and wherein the density of the total number of embossments of the bottom ply is in the range of from 25 to 120 dots/cm^2, optionally 40 to 100 dots/cm^2, or 50 to 80 dots/cm^2.

9. The tissue paper product of any one of the preceding claims, wherein the inner ply and the top ply are ply-bonded with the bottom ply by the adhesive applied only in an area comprising, optionally consisting of, the tips of the first embossments, optionally at least 95%, 98%, or even at least at 99% of the tips of the first embossments.

10. The tissue paper product of any one of the preceding claims, wherein the inner ply is a creped ply having a basis weight in the range of 13 to 30 g/m^2, optionally 16 to 28 g/m^2, or 18 to 24 g/m^2,

wherein the creped ply comprises creping lines extending along a first direction and parallel ribs and valleys extending along a second direction,

an angle between the first direction and the second direction is in a range of 80° to 100°,

the ribs and valleys provide an average core roughness Rk in the range of 10 to 300 µm, and

a number of peaks is in the range of 4 to 12 per cm as measured in the first direction.

11. A roll of tissue paper product made of a spirally wound continuous web of the tissue paper product of any one of the preceding claims, the tissue paper product having a first end and a second end, the web of tissue paper product being wound such as to define an axially extending inner hole centrally positioned relative to the roll and such that the first end is located on the outer side of the roll and the second end is located at the inner hole.

12. The roll of tissue paper product of claim 11, wherein a diameter of the roll is in a range of from 85 to 200 mm.

13. A stack of unfolded sheets or of folded sheets, optionally of interfolded sheets, made of tissue paper product of any one of claims 1 to 10.

14. A method of manufacturing a tissue paper product, such as toilet paper or household towel, comprising at least three plies, comprising the steps of:

- feeding at least three plies, including a first ply, a second ply, and a third ply, with a basis weight in the range of from 13 to 30 g/m^2, optionally 16 to 28 g/m^2, or 18 to 24 g/m^2, respectively;
- embossing the first ply on a first embossing roll with embossing protrusions with a first height h1 to form first embossments on the first ply,
- embossing the first ply on a second embossing roll with second embossing protrusions with a second height h2, the first height h1 being larger than the second height h2, wherein the embossing on the second embossing roll is carried out before or after the embossing on the first embossing roll;
- embossing the second ply on a third embossing roll with embossing protrusions with a third height h3;
- ply-bonding the first ply, the second ply, and the third ply, and optionally further plies, such that the first ply and the second ply are outermost plies and the third ply is an inner ply, using an adhesive, such as a lamination glue, and/or water, and/or mechanical bonding, such as edge embossing;

wherein the inner ply is not embossed, and
wherein at least one of the first embossing roll, the second embossing roll, and the third embossing roll is a heated roll.

15. A method of manufacturing a tissue paper product, such as toilet paper or household towel, comprising at least three plies, comprising the steps of:

- feeding at least three plies, including a first ply, a second ply, and a third ply, with a basis weight in the range of from 13 to 30 g/m^2, optionally 16 to 28 g/m^2, or 18 to 24 g/m^2, respectively;
- embossing the first ply on a primary embossing roll with first embossing protrusions with a first height h1 to form first embossments on the first ply and with second embossing protrusions with a second height h2, the first height h1 being larger than the second height h2;
- embossing the second ply on a secondary embossing roll with embossing protrusions with a third height h3;
- ply-bonding the first ply, the second ply, and the third ply, and optionally further plies, such that the first ply and the second ply are outermost plies and the third ply is an inner ply, using an adhesive, such as a lamination glue, and/or water, and/or mechanical bonding, such as edge embossing;

wherein the inner ply is not embossed, and
wherein at least one of the primary embossing roll and the secondary embossing roll is a heated roll.

16. The method of manufacturing a tissue paper product of claim 14 or 15, wherein the at least one heated roll is heated from the inside or outside by a heating means, the heating means optionally comprising heat carrying fluid and/or relying on induction and/or infrared heating, to a surface temperature in the range of 80°C to 170°, optionally 100°C to 165°, 110°C to 165°, 120°C to 160°, or 130°C to 155°.

17. The method of manufacturing a tissue paper product of any one of claims 14 to 16, wherein the first ply or the

second ply is moistened with an amount of liquid in the range of 2% to 12% of the basis weight of the first ply, or optionally 4% to 10% of the basis weight of the first ply, prior to being embossed with a heated embossing roll.

18. The method of manufacturing a tissue paper product of any one of claims 14 to 17, comprising the step of applying an adhesive, such as lamination glue, to the first ply and/or the third ply.

19. The method of manufacturing a tissue paper product of any one of claims 14 to 18, wherein an embossing load during the embossing the first ply and/or the second ply reaches a range of from to 1 to 50 kg/cml, or optionally 5 to 40 kg/cml.

20. The method of manufacturing a tissue paper product of any one of claims 14 to 19, wherein the third ply is provided as a creped ribbed web with a basis weight in the range of 13 to 30 g/m^2, optionally 16 to 28 g/m^2, or 18 to 24 g/m^2, the creped ribbed web being a web comprising creping lines extending along a first direction and parallel ribs and valleys extending along a second direction,

wherein an angle between the first direction and the second direction is in a range of 80° to 100°, the ribs and valleys provide an average core roughness Rk in the range of 10 to 300 µm, and a number of peaks is in the range of 4 to 12 per cm as measured in the first direction.

21. The method of manufacturing a tissue paper product of claim 20, wherein the creped ribbed web is provided by manufacturing a web using a creping blade provided with a rake edge comprising indentations,

the rake edge optionally comprising 4 to 12 indentations over a rake edge length and/or the indentations optionally having a depth in a range of 0.1 mm to 1.2 mm.